

In re Application of:
Chien et al.
Application No.: 09/954,571
Filed: September 11, 2001
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PATENT
Attorney Docket No.: ST-UCSD3210
(formerly 041673-1001)

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-69 (Cancelled)

70. (Currently Amended) A method for ~~treating~~ increasing the efficiency of transduction of a gene into cardiac muscle to treat heart failure associated with loss of cardiac muscle contractility in a patient, ~~wherein the gene comprises~~ comprising administering a mutated form of a phospholamban (PLB) gene encoding a protein having an S16E mutation therein, to improve SERCA2 mediated cardiac muscle contractility, and the method comprises the step of administering a viral vector comprising the mutated PLB gene to the heart while the patient is in a state of hypothermia.

71. (Previously Presented) The method of claim 70, wherein the gene is administered in a viral gene expression vector.

72. (Previously Presented) The method of claim 70, wherein the viral gene expression vector further comprises a promoter suitable for use in cardiac muscle.

73. – 76. (Cancelled)

77. (Previously Presented) The method of claim 70, wherein the viral gene expression vector is an adeno-associated viral vector (AAV).

78. (Previously Presented) The method of claim 70, further comprising co-administering a sarcoplasmic reticulum CA2+ ATPase (SERCA-2) gene with the PLB gene to the cardiac muscle.

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79 through 85. (Canceled)

86. (Currently Amended) The method of claim 70 ~~79~~, wherein the ~~mutated dominant~~
~~negative~~ phospholamban gene further enhances SERCA-2 activity in the cardiac muscle.

87. (Previously Presented) The method of claim 70, wherein the phospholamban gene is
administered with a permeabilizing agent.

88. (Previously Presented) The method of claim 87, wherein the permeabilizing agent is
histamine, substance P or serotonin.

89. (Currently Amended) The method of claim 70, wherein the ~~cardiac muscle is in the~~
~~heart of a human~~ patient is a human.

90. (Currently Amended) The method of claim 70 ~~88~~, wherein the patient is suffering
from cardiac arrest or brachycardia with heart failure at the time that the gene is administered.

91. (Currently Amended) The method of claim 70 ~~88~~, wherein the heart is isolated from
systemic circulation at the time that the gene is administered.

92. (Canceled)

93. (Previously Presented) The method of claim 70 ~~92~~, wherein practice of the method
reduces the occurrence of cardiac interstitial fibrosis.

94 through 96. (Canceled)

97. (Currently Amended) The method of claim 70 ~~95~~, wherein the viral expression vector
is an adenoviral vector.